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Standard Operating Procedure – PCB Fluorescent Light Ballast Management

1. Purpose

This Standard Operating Procedure (SOP) outlines the work instructions for the handling and disposal of waste polychlorinated biphenyl (PCB)-containing fluorescent ballasts and non-PCB ballasts. All ballasts manufactured through 1978 should be assumed to contain PCBs. Fluorescent ballasts manufactured after 1978 still may contain PCBs. All fluorescent light ballasts that are not specifically labeled "No-PCBs" are assumed to contain PCBs. The handling of PCB-contaminated waste requires special consideration. The above criteria applies to magnetic ballasts only. Ballast marked as "electronic" or "electric" are not suspect for PCBs.


2. Scope

This practice applies to Monroe School District (MSD) maintenance operations that impact fluorescent light ballasts and other materials that may contain PCBs.

3. Responsibilities

All MPS maintenance personnel and anyone whose job may require them to remove, handle, or replace PCB-containing ballasts and non-PCB ballasts from lighting fixtures are required to follow this SOP.

1. PCB Plan Administrator
 - a. Responsible for regularly scheduled review and update of the SOP to ensure it meets current regulatory requirements and the specific needs of the Monroe School District.
2. PCB Supervisor
 - a. Ensure all work is performed in compliance with the policies and procedures outlined in this SOP and applicable state and federal regulations;
 - b. Record any illness, disease, injury, pulmonary disorder, or death of any person on site;
 - c. Perform or supervise demarcated area set-up;
 - d. Control entry and exit to the demarcated area;
 - e. Ensure that employees working within the demarcated area are properly wearing and using protective clothing and respirators as required by applicable regulations and this SOP;
 - f. Ensure that employees use the hygiene facilities and observe the decontamination procedures specified in this SOP;
 - g. Perform safety recordkeeping.

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3. Site Workers: Site workers will be required to perform the following duties

- a. Receive PCB Awareness training in accordance with the Hazard Communication Standard WAC 296-800-170;
- b. Read and follow this SOP;
- c. Check all personal safety equipment to ensure it is in good working condition;
- d. Immediately report any accidents, illness, spills, or unsafe conditions to the PCB Supervisor.


4. Procedure

Work Area Preparation and Protection:


1. Prior to starting work the following tasks need to be completed:
 - a. Perform Lockout/Tagout of electrical system to ensure ballasts are not energized.
 - b. Place signs and barrier tape at the entrances to the work area at sufficient distances to provide unauthorized personnel adequate warning.
 - c. Vacate the work area by all except maintenance employees. No other workers will be allowed in the work area until fluorescent ballast removal work is complete.
 - d. Protect floors directly beneath the unit using 6-mil poly sheeting duct taped to the floor. Protect fixed equipment or fixtures (e.g., bathroom vanity, desks, and counters) with 6-mil poly sheeting and duct tape.
 - e. Place a plastic tub directly beneath ballasts as a containment system to prevent spills.
 - f. Set up ladder if necessary to safely reach the ballast.
 - g. Ensure that packaging equipment including drums are available, intact, and appropriately labeled. The label should include the first date of accumulation.
 - h. Don PPE as described below.

Determine if light ballast is PCB-containing by visually inspecting it and then:

1. If ballast is not labeled "NO PCBs" and is not leaking or is marked "Electronic":
 - a. Assume it is PCB-containing.
 - b. When removing the non-leaking PCB light ballast, wear disposable non-porous protective gloves and eye protection.
 - c. Place ballast in "Intact PCB Ballasts" labeled drum in chemical storage area at Facilities & Operations.
2. If any ballast is found to be leaking:
 - a. At all times when PCB-containing materials in any volume are not sealed in drums, containers or electrical equipment, workers shall wear the following PPE:

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- i. Disposable non-porous protective gloves
 - ii. Disposable whole body protective clothing impermeable to PCBs (Tyvek® or equivalent)
 - iii. Respiratory protection (NIOSH/MSHA-approved) against organic vapors and particles (minimum of a half-face mask, negative-pressure respirator with disposable particulate filtration (P-100) and organic vapor (OV) cartridge. Protection factor: 10)
 - iv. Eye protection
 - b. Leaking PCB ballasts are to be double-bagged, brought to the storage area at Facilities & Operations and placed in the drum labeled "Leaking PCB Ballasts". Bags shall be a minimum of six-mils thick and shall not be filled beyond 10 pounds (approximately 3-4 magnetic ballasts)
 - c. Any PPE contaminated during removal must be disposed of as PCB-waste and placed in the drum with the leaking PCB light ballasts.
3. If any leaking ballast has resulted in a PCBs spill:
- a. Report the spill to the Director of Facilities & Operations immediately.
 - b. Cleanup of Work Area, PCB Articles and Spills
 - i. Equipment and Tools: After the ballast is removed from its fixture and removal of other PCB-containing materials (e.g., spill residue) is complete, all tools and equipment used in the work shall be decontaminated and properly stored for reuse.
 1. Where work surfaces have contacted PCB fluids, they shall be scraped clean, flushed with solvent, wiped clean and all debris placed in the drum with the leaking PCB light ballasts.
 2. All tools that may have come in contact with PCBs at any concentration shall be thoroughly flushed with solvent, wiped clean and properly stored.
 - ii. PCB Articles (Electrical Equipment): All exterior surfaces of electrical equipment that may have come in contact with PCBs or PCB-contaminated oils or fluids either during the course of work activities or due to past leaks, shall be thoroughly cleaned with solvent and wiped clean.
 - iii. Slabs, Floors and Walls: All surfaces which have come in contact with PCBs or PCB mixtures in the course of the work, or as a result of past leaks, shall be thoroughly cleaned using a combination of sorbent, solvent and cleaners.
 - c. Containerization and Marking
 - i. All solids such as sorbents, solvent soaked rags, disposable protective clothing and other incidentals shall be placed in the drum with the leaking PCB light ballasts.
4. Disposal:
- a. Dispose of the "Intact PCB Ballasts" and "Leaking PCB Ballasts" labeled drums as PCB Bulk Product Waste through one of the approved

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disposal methods (i.e. TSCA Incinerator, TSCA/RCRA Landfill, State-approved landfill (leach test required), etc.).


- b. All drums used for storage and disposal of PCB light ballasts and associated materials shall be approved DOT containers.
5. Ballasts that are labeled "No-PCBs" are considered State-Regulated PCB Waste and will need to be disposed of as "State Special Waste" at a "Subtitle D" landfill permitted to accept such waste. Follow the removal procedures and PPE requirements for non-leaking unlabeled PCB light ballasts and store in an approved DOT container.
6. Electronic ballasts can be put in the trash if they have plastic covers or recycled with scrap metal if they have metal covers.

5. References

1. U.S. Environmental Protection Agency (EPA)
 - a. 40 CFR 761: PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
 - b. PCB-Containing Fluorescent Light Ballasts (FLBs) in School Buildings (<http://www3.epa.gov/epawaste/hazard/tsd/pcbs/pubs/ballasts.htm>)
2. U.S. Department of Transportation (DOT)
 - a. 49 CFR 100 through 180: Hazardous Materials Transportation Act Regulations
3. Washington State Department of Labor & Industries (L&I)
 - a. WAC 296-800: Safety and Health Core Rules
4. Washington State Department of Ecology (Ecology)
 - a. WAC 173-303: Dangerous Waste Regulations

6. Definitions

1. Electronic-type ballast: Electronic ballasts alter the flow of electricity in the light bulb by using a series of induction coils that are separated from one another. They also change the frequency of the electrical current without changing the voltage.
2. Liquid Cleaners: Concentrated liquid alkaline base cleaner.
3. Magnetic-type ballast: magnetic ballasts, current flows through coils of copper wire before moving on to the light bulb. When the copper is exposed to the current, it generates a magnetic field that captures most of the current that might have continued to flow.

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4. No PCBs Label: A "No PCB" label means there are less than 50 ppm PCBs in the equipment/ material. However, the equipment/material may still be regulated by the Washington State Department of Ecology, which starts regulation of PCBs at 2 ppm.
5. PCBs: Polychlorinated biphenyls.
6. PCB Light Ballasts: All magnetic light ballasts without "No PCBs" labels.
7. PCB-Contaminated Items: Light fixture components that cannot be cleaned, personal protective equipment, cleaning materials and any other materials contaminated with PCBs at any concentration.
8. Solvents: Deodorized kerosene, diesel fuel, toluene, xylene, hexane or other solvents recognized for a high degree of PCB solubility.
9. Sorbents: Material recognized for a high degree of absorption.
10. State-Regulated PCB Waste: Magnetic ballasts or other materials that have been shown to contain 2 parts per million (2 ppm) or greater PCBs by laboratory analysis. State-regulated PCB waste also includes magnetic light ballasts with "No PCBs" labels. A "No PCB" label means there are less than 50 ppm PCBs, but the Washington State Department of Ecology starts regulation of PCBs at 2 ppm.
11. Storage Containers: Storage containers shall be suitable to receive and retain any PCB-containing or contaminated materials until disposal at an approved site. They shall comply with container specifications set forth in 49 CFR 178.80, 178.82, 178.102 or 178.116. Containers shall be labeled with waterproof print and permanent adhesive in accordance with WAC, DOT, UN and EPA regulations.
12. TSCA: The federal Toxic Substances Control Act, which is enforced by the U.S. Environmental Protection Agency.
13. TSCA-Regulated PCB Waste: All magnetic light ballasts without "No PCBs" labels other PCB-containing materials that have been shown to contain 50 parts per million (50 ppm) or greater PCBs by laboratory analysis.